


PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 200313701 WO		FOR FURTHER ACTION		See Form PCT/PEA/416
International application No. PCT/EP2005/051259		International filing date (day/month/year) 17.03.2005		Priority date (day/month/year) 20.03.2004
International Patent Classification (IPC) or national classification and IPC G02F1/1335				
Applicant HEWLETT-PACKARD DEVELOPMENT COMPANY L.P. et al				
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau a total of 6 sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>				
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>				
Date of submission of the demand 29.08.2005		Date of completion of this report 07.10.2005		
Name and mailing address of the International preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465		Authorized Officer Girardin, F Telephone No. +49 89 2399-7692		



Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

Description, Pages

1-16 as originally filed

Claims, Numbers

1-16 received on 29.08.2005 with letter of 22.08.2005

Drawings, Sheets

1/26-26/26 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-16
	No: Claims	
Inventive step (IS)	Yes: Claims	1-16
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-16
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Re Item V.

1. Cited documents

The following documents are referred to in this communication:

- D1: PATENT ABSTRACTS OF JAPAN vol. 014, no. 195 (P-1039), 20 April 1990 (1990-04-20) -& JP 02 039086 A (KYOCERA CORP), 8 February 1990 (1990-02-08)
- D2: HOCHBAUM A ET AL: "51.3: Cholesteric Color Filters: optical Characteristics, Light Recycling, and Brightness Enhancement" PROCEEDINGS OF THE SID, 18 May 1999 (1999-05-18), XP007008990 SAN JOSE, CALIFORNIA, USA
- D3: EP-A-1 088 877 (CANON KABUSHIKI KAISHA) 4 April 2001 (2001-04-04)

2. State of the art

The state of the art represented by D1, which is regarded as the closest prior art, discloses:

a colour display device comprising:
a first (11) and a second (12) display substrates being opposed to each other at distance and with an electro-optic material between them; each of the substrates having electrodes on their inner surface, these electrodes overlapping to define pixels;
a set of first colour filters (17a) on the first substrate and a set of second colour filters (17b) on the second substrate;
whereby the colour of light transmitted through a pixel is determined by the light transmitted by both the first and the second colour filters that intersect at that pixel (Abstract and Fig.2).

In this device, one colour filter covers two elongated electrodes and the colour filters on the first substrate are aligned substantially parallel to those on the second substrate. The overlap of the pixels defined by the electrodes and the colour filters is only guaranteed by a very precise printing process of the filters.

Therefore, the problem to be solved by this invention is how to simplify the fabrication

process of the device of D1.

3. Invention

According to this invention, the problem is solved in the following way:

in claims 1, 10, 14 and 15 the elongated electrodes and the colour filters have the same sizes and shapes and are in register with each other, thereby allowing the use of the colour filters as masks to realise the electrodes. The alignment of pixels and colour filters is always guaranteed.

4. Novelty and inventive step

None of the cited documents describe a liquid crystal display in which one colour filter is used on each of the substrates and wherein the elongated electrodes and the colour filters on each substrate are registered and have the same size and shape, the subject-matter of claims 1, 10, 14 and 15 is therefore new in the sense of Article 33(2) PCT.

Furthermore, the skilled person would find no hint in the prior art to use colour filters having the same size and shape as the electrodes in such a display. The subject-matter of claims 1, 10, 14 and 15 is therefore considered to involve an inventive step in the sense of Article 33(2) PCT.

5. Dependent claims

Claims 2-9, 11-13 and 16 are dependent on claims 1, 10, 14 or 15 and as such also meet the requirements of the PCT with respect to novelty and inventive step.